WHAT IS CLAIMED IS:

1. A magnetoresistance effect element comprising:

a magnetoresistance effect film including a magnetization fixed layer having a ferromagnetic film in which the direction of magnetization is substantially fixed to one direction, a magnetization free layer having a ferromagnetic film in which the direction of magnetization varies in response to an external magnetic field, and an non-magnetic intermediate layer provided between the magnetization fixed layer and the magnetization free layer;

a pair of electrodes which are electrically connected to the magnetoresistance effect film for applying a current in a direction perpendicular to the plane of the magnetoresistance effect film; and

a resistant regulating layer which contains an oxide, a nitride, a fluoride, a carbide or a boride as a principal component.

2. A magnetoresistance effect element comprising:

a magnetoresistance effect film including a magnetization fixed layer having a ferromagnetic film in which the direction of magnetization is substantially fixed to one direction, a magnetization free layer having a ferromagnetic film in which the direction of magnetization varies in response to an external magnetic field, and an non-magnetic intermediate layer provided between the magnetization fixed layer and the magnetization free layer;

a pair of electrodes which are electrically connected to the magnetoresistance effect film for applying a current in a direction perpendicular to the plane of said magnetoresistance effect film; and

a resistant regulating layer for restricting the quantity of a sense current passing through the magnetoresistance effect film.

3. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer has pin holes at a

rate of hole area which is 50 % or less.

4. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer is made of two kinds or more of metallic elements.

5. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer is formed in the magnetization free layer, or on the magnetization free layer on the opposite side to the non-magnetic intermediate layer.

6. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer is formed in the non-magnetic intermediate layer or on the interface of the non-magnetic intermediate layer.

7. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer is formed in the magnetization fixed layer, or on the magnetization fixed layer on the opposite side to the non-magnetic intermediate layer.

8. A magnetoresistance effect element as set forth in claim 6, wherein the resistance regulating layer contains, as a principal component, at least one of oxides, nitrides, fluorides, carbides or borides of an element selected from the group consisting of B, Si, Ge, Ta, W, Nb, Al, Mo, P, V, As, Sb, Zr, Ti, Zn, Pb, Th, Be, Cd, Sc, La, Y, Pr, Cr, Sn, Ga, Cu, In, Rh, Pd, Mg, Li, Ba, Ca, Sr, Mn, Fe, Co, Ni and Rb

9. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer is formed on the magnetization free layer on the opposite side to the non-magnetic intermediate layer, or in the non-magnetic intermediate layer, or on the interface of the non-magnetic intermediate layer, and contains a metal including at least one of Cu, Au, Ag, Ru, Ir, Re, Rh, Pt, Pd, Al and Os.

10. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer comprises:

a first region which is formed on the magnetization free layer on the opposite side to the non-magnetic intermediate layer, or in the non-magnetic intermediate layer, or on the interface of the non-magnetic intermediate layer, and which contains Cu as a principal component; and

a second region which contains, as a principal component, at least one of oxides, nitrides, fluorides, carbides and borides of an element selected from the group consisting of B, Fe, Mo, Pb, Ta, Cr, V, Si, Sb and Ge.

11. A magnetoresistance effect element as set forth in claim 6, wherein the resistance regulating layer comprises:

a first region which is formed on the magnetization free layer on the opposite side to the non-magnetic intermediate layer, or in the non-magnetic intermediate layer, or on the interface of the non-magnetic intermediate layer, and which contains Au as a principal component; and

a second region which contains, as a principal component, at least one of oxides, nitrides, fluorides, carbides and borides of an element selected from the group consisting of B, Fe, Ge, Mo, P, Rh, Si, W and Cr.

12. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer comprises:

a first region which is formed on the magnetization free layer on the opposite side to the non-magnetic intermediate layer, or in the non-magnetic intermediate layer, or on the interface of the non-magnetic intermediate layer, and which contains Ag as a principal component; and

a second region which contains, as a principal component, at least one of oxides, nitrides, fluorides, carbides and borides of an element selected from the group consisting of Be, Co, Cr, Fe, Mo, Pb, Si, Ta, V, W, Ge, Sn, Al and Rh.

13. A magnetoresistance effect element comprising:

a magnetoresistance effect film including a magnetization fixed layer having a ferromagnetic film in which the direction of magnetization is substantially fixed to one direction, a magnetization free layer having a ferromagnetic film in which the direction of magnetization varies in response to an external magnetic field, and an non-magnetic intermediate layer provided between the magnetization fixed layer and the magnetization free layer;

a pair of electrodes which are electrically connected to the magnetoresistance effect film for applying a current in a direction perpendicular to the plane of the magnetoresistance effect film; and

a region which is formed on the magnetization free layer on the opposite side to the non-magnetic intermediate layer, or in the non-magnetic intermediate layer, or on the interface of the non-magnetic intermediate layer, and which contains, as a principal component, a crystalline oxide containing at least one selected from the group consisting of B, Si, Ge, W, Nb, Mo, P, V, Sb, Zr, Ti, Zn, Pb, Cr, Sn, Ga, Fe and Co.

14. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer has a thickness of 0.5 to 5 nm.

15. A magnetoresistance effect element as set forth in claim 1, wherein the resistance regulating layer includes holes of a metal phase of 2 % to 30 %.

16. A magnetoresistance effect element as set forth in claim 15, wherein the mean diameter of each of the holes of the resistance regulating layer is in the range of from 5 % to 100 % with respect to the total thickness of the magnetization free layer, the non-magnetic intermediate layer and the magnetization fixed layer.

17. A magnetoresistance effect element as set forth in claim 15, wherein the distance between adjacent two of the holes of

the metal phase is in the range of from 10 nm to 100 nm.

18. A magnetoresistance effect element as set forth in claim 15, wherein the mean distance between adjacent two of the holes of the metal phase is in the range of from 10 nm to 100 nm.

19. A magnetic head having a magnetoresistance effect element as set forth in any one of claims 1 through 17.

20. A magnetic recording and/or reproducing system which has a magnetic head as set forth in claim 19 and which is capable of reading magnetic information stored in a magnetic recording medium.